SCIENCE TEXT-BOOKS FOR THE FUTURE.

Manuale di Fisica ad Uso delle Scuole Secondarie e Superiori. Vol. iii. "Elettrologia." By Prof. B. Dessau. Pp. vii + 760. (Milano: Società Editrice Libraria, 1918.) Price 23 lire.

WHATEVER changes are introduced in our educational scheme in the near future, it may be taken as certain that physical science is destined to occupy a more prominent position in the schools. It is to be hoped, therefore, that science-teachers will rapidly come to some agreement concerning its scope and the general method of its presentation. To the present writer it seems evident that if the next generation is to possess a better appreciation than its predecessors of the possibilities of science as a means of enjoyment, a mental discipline, or an industrial power, science must be taught in a less detailed and more general manner than is at present customary. As Sir Napier Shaw has indicated, there must be less insistence on laboratory science in the schoolboy stage, and more emphasis on its applications to large-scale and natural phenomena and to recent discoveries. This may mean some missing links in the logic—which can be supplied, when necessary, at the university—but it will be balanced by a great increase in interest for both pupil and teacher. Obviously this will necessitate a radical revision of the present school text-books.

It was in the hope of obtaining some light on the nature of this revision that the book now under notice was opened, especially as it forms the third volume of a "Manual of Physics for the Use of Secondary and Higher Schools." To criticise a foreign text-book from such a point of view would, of course, be unfair; it may therefore at once be said that only two minor criticisms are called for. The first is that, considering its public, the book appears to be unnecessarily large and costly; the second, that some of the illustrations are so well worn as to deserve a period of retirement. For example, induced currents are demonstrated by an astatic galvanometer and a Bunsen (or Daniell) cell, though probably no teacher would use this apparatus as the most convenient.

The book is written with all the literary charm, lucidity, and logicality of method that seem inseparable from French and Italian manuals; it is up to date in its matter, and is calculated to excite and hold the interest of the reader.

From the point of view indicated above, it may be noted that modern developments receive ample treatment; such are X-rays, radio-activity, telegraphy (wireless and otherwise), telephony, and machinery; even the constitution of the atoms and atmospheric electricity receive brief mention in the concluding pages. The order differs little from that adopted in English text-books; in this, perhaps, it is too conservative for a new model. For instance, there appears to be little reason why the idea of electrons should not be introduced at a much earlier stage, as is done in some American text-books; a stream of charged particles does, at least, give a student concrete ideas on the nature of a current, and makes electrostatic induction less hazy. As a model for future books in this country, the volume is too detailed and, except for those who intend to pursue the subject further, too mathematical to be copied.

In conclusion, one can but wonder when the pupils of our "secondary and higher schools" will be capable of reading such a volume with understanding and profit. R. S. W.

PLANTING IN MARITIME LOCALITIES.

Seaside Planting for Shelter, Ornament, and Profit. By A. D. Webster. Pp. 156. (London: T. Fisher Unwin, Ltd., 1918.) Price 18*s*. net.

THERE is no kind of planting which needs more careful study before it is undertaken than the planting of maritime situations. To all the problems that arise in inland localities in regard to soil, moisture, and exposure, there is added at the seaside the very momentous one of salt-laden spray. Winds, too, not only reach their maximum of violence on our shores; their mechanical effects are more persistent there than elsewhere. The best thing anyone contemplating an extensive scheme of planting near the sea can do is to make a thorough study of the problem by visiting places where it has been successfully solved. Such a place is the famous Holkham sands, in Norfolk, planted by the Earl of Leicester. Here an immense area of loose, shifting sands exposed to the full blasts from the North Sea has been clothed with a magnificent growth of pines and other trees. But, failing that, the next best thing is to obtain expert advice. The literature on the subject is not extensive, and we know no work that deals more satisfactorily with it than this new book by Mr. A. D. Webster. Mr. Webster's book is no mere *réchauffé* of what has been written before. It embodies the personal experience of one who has planned, superintended, and successfully achieved the planting of many seaside places. Besides the planting of trees and shrubs for utility and ornament, Mr. Webster deals also with the fixing of sand dunes by the use of marram grass and other plants. This question is of immense importance in connection with coast erosion and the smothering of fertile land by inblown sand.

The book is well printed and illustrated by some thirty half-tone plates, excellently reproduced. These pictures would, however, have been more convincing had they illustrated plantations and trees actually existing in maritime localities. Many of the photographs were taken in obviously inland sites. The plates bearing the legends "Laburnum by the Seaside," "Whitebeam at the Seaside," and "Stone Pine at the Seaside" are all of trees growing in Kew Gardens, which is scarcely a maritime locality. The picture entitled

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"Weymouth Pine at Bournemouth" is also misleading. There are very few Weymouth pines (*Pinus strobus*) at Bournemouth, and those on the spot illustrated are almost exclusively *Pinus pinaster*, with a few Scotch pines mixed among them. W. J. B.

OUR BOOKSHELF.

British Rainfall, 1917: *On the Distribution of Rain in Space and Time over the British Isles during the Year* 1917. By Dr. H. R. Mill and C. Salter. Pp. 240. (London: Edward Stanford, Ltd., 1918.) Price 10*s*.

THIS is the fifty-seventh annual volume of "British Rainfall," and it is an exceedingly creditable piece of work for a private organisation, entirely without State aid. Records are given for upwards of 5000 stations, and every care has been taken to render the monthly and annual maps and tables complete, the curtailment due to the exigencies of the times being in the letterpress.

A small area near the estuary of the Thames had fewer than 150 rain days during the year, while over a large part of Scotland and Ireland, as well as in parts of South Wales and Lancashire, the rain days exceeded 200. Rain spells are given, or periods of more than fourteen consecutive days, every one of which is a rain day, and there is also a summary of droughts. The general rainfall tables afford most valuable information, and, fortunately, the war has caused no break in the publication of the data which have been accumulated now for so many years.

A special article is given on the unprecedented rainfall in the south-west of England on June 28, when 9·56 in. during the twenty-four hours were measured at Bruton, in Somerset. The snowfall of 1917 is dealt with.

The diminution of rainfall with elevation above the ground at Greenwich Observatory is discussed by Mr. W. R. Nash, whose long service at the Royal Observatory adds much to the value of the results. The monthly and yearly values for the several heights carry with them a high degree of exactness. Approximately at 10 ft. above the ground there is a diminution of about 3 per cent., at 22 ft. a diminution of 10 per cent., at 38 ft. a diminution of 20 per cent., and at 50 ft. a diminution of 35 per cent. of the ground rainfall. These results are rather suggestive for aircraft.

C. H.

The Scientists' Reference-Book and Diary, 1919. Pp. 147 + Diary. (Manchester: Jas. Woolley, Sons, and Co., Ltd.) Price 3*s*. 6*d*.

THE physical and chemical constants, together with the scientific and general information contained in the reference-book, will prove of real assistance to the worker in science. The convenient manner in which the data are arranged will make reference easy, and the fact that the book and diary are bound together in a case of a size suitable for the pocket should continue to give the pocket-book a wide popularity.

LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. *No notice is taken of anonymous communications.]*

Climograph Charts.

MY attention has been directed to a note in NATURE of October 17, 1918 (p. 132), on the origin of the chart called a climograph, which gives a graphic representation of the climatic conditions of a locality in the course of the year in respect of warmth and moisture. The paragraph states that the method is due to Dr. Griffith Taylor, of the Meteorological Bureau, Melbourne. I think it should be noted that diagrams of a similar character with the dry bulb, instead of the wet bulb, combined with the relative humidity, were described and illustrated by Dr. John Ball, of the Egyptian Survey Department, eight years ago in the November issue of the *Cairo Scientific Journal,* vol. i., No. 4. We discussed the diagrams at the Meteorological Office early in 1911, when the late Mr. W. Marriott, of the Royal Meteorological Society, produced a number of similar diagrams for English stations, some of which were particularly intriguing, because they failed to distinguish, as we thought they might have done, between places which had the reputation of being bracing on one hand, and relaxing on the other.

The subject was further pursued in a paper by Dr. Ball and Mr. J. I. Craig, read at the meeting of the British Association at Portsmouth in 1911. Mr. Craig, in reading the paper, exhibited slides representing on that plan a variety of climates, such as unhealthy climates, continental and marine climates, London, the cotton lands, the monsoon, the influence of altitude, dry health resorts as compared with London, Toronto as compared with Davos, and various climates of the United States. These graphs differ from those afterwards prepared as climographs by Dr. Griffith Taylor in having the dry bulb instead of the wet bulb, and the alteration, for the most part, makes little difference to the general appearance of the diagram, though it alters its position on the sheet.

As a matter of fact, neither form of diagram seems to be completely satisfying as distinguishing between the comfortable, the tolerable, and the unendurable in climate. Some years ago Mr. W. F. Tyler, of the Chinese Customs Service, pointed out that between limits of temperature, say 55° F. and 65° F., nobody minded much what the humidity was; but outside these limits of the "generally comfortable" there was a range of temperatures of the "just tolerable" order for damp air, which soon got to the "unendurable" on the side of higher temperature. Beyond these, again, is a range of temperatures under which life is possible only in dry air. An effective climatic diagram would in some way or other exhibit the relation of the climate to the ranges compatible with comfort, life, and death.

NAPIER SHAW.

Meteorological Office, South Kensington,
London, S.W.7, January 1.

A University Association.

PROF. ARMSTRONG'S letter in NATURE of January 2 has just come to my notice, and as chairman of the Conference of University Lecturers, to which reference was made in these columns under the "University and Educational Intelligence" of December 12, I hasten

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